

Claims Section

1. (Previously Presented) A method for producing high-purity hydrogen, comprising:

supplying a reducing gas, composed mainly of hydrogen and carbon monoxide, produced by pyrolysis of an organic material to an anode side of an electrolyzer having a diaphragm comprising solid oxide electrolyte;

supplying steam to a cathode side of said electrolyzer to produce hydrogen and oxygen by electrolytic action,

wherein said oxygen produced in said cathode side of said electrolyzer passes through said diaphragm and reacts with said reducing gas to create concentration gradient of oxygen ions, thus lowering electrolysis voltage;

supplying a high temperature gas, which is generated in said anode side of said electrolyzer, to a heat exchanger; and

supplying steam produced in said heat exchanger to a pyrolysis fluidized bed of a pyrolysis furnace that produces the reducing gas,

wherein the steam supplied to said cathode side of said electrolyzer is produced in said heat exchanger.

2. (Original) A method according to claim 1, wherein said electrolyzer comprises a high-temperature electrolyzer.

3. (Original) A method according to claim 1, wherein said organic material comprises biomass.

4. (Original) A method according to claim 3, wherein said biomass comprises waste wood or raw refuse.

Claims 5-11 (Cancelled)